TOC Frequently Asked Questions (FAQs)
(Last updated: Feb. 11, 2008)

1. What is the difference between Total Ownership Cost (TOC) and life cycle cost (LCC)?

Answer: Typical LCC estimates have included all costs associated with the research and development, procurement, operation, logistical support, and disposal of a weapons system. TOC includes all elements of LCC plus the total supporting infrastructure that plans, manages, and executes that weapons system program over its full life. TOC also includes the cost of requirements for common support items and systems that are incurred because of introduction of that weapons system. Memo of 13 Nov 1998 from ASN RD&A, Subj: Definition of Total Ownership Cost (TOC), Life Cycle Cost (LCC), and the Responsibilities of Program Managers provides the following definitions which are official within DoD for both DoD TOC and Defense Systems (Weapons Systems) TOC.

DoD TOC: "Comprised of costs to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment and real property, the costs to recruit, train, retain, separate and otherwise support military and civilian personnel, and all other costs of business operations of the DoD."

Defense Systems TOC: "Defined as Life Cycle Cost (LCC). LCC (per DoD 5000.4M) includes not only acquisition program direct costs, but also the indirect costs attributable to the acquisition program, i.e., costs that would not occur if the program did not exist. For example, indirect costs would include the infrastructure that plans, manages, and executes a program over its full life and common support items and systems."

Program Manager TOC Role: "The responsibility of program managers in support of reducing DoD TOC is the continuous reduction of LCC for their systems."

2. What is meant by linked-indirect cost?

Answer: Linked-indirect costs refer to those costs generated as a result of introducing and supporting a weapons system in the fleet, but which cannot be directly associated with one specific program. Examples of linked-indirect cost include non-weapons system specific operator and maintainer training and SYSCOMs contracts office. Non-linked indirect costs, not included under TOC, include things like the Navy Band and shore based hospitals.

3. How do CAIV and Cost-Wise Readiness relate to TOC?

Answer: Cost As an Independent Variable (CAIV) is a means for managing costs - - costs are challenged rather than accepted as a given. All programs have already developed CAIV plans which were to define initiatives for reducing total LCC (TOC). Cost-Wise Readiness (CWR) is an extension of CAIV. CWR is NAVAIR's approach for implementing CAIV on in-service programs. Both CAIV and CWR are mechanisms to positively impact TOC.

4. What is included in the TOC element structure?

Answer: The TOC element structures include cost elements for each phase of the program: research & development, production, operating & support, and demilitarization & disposal. Expanded TOC element

structures for Aircraft, Electronics, and Missiles are identified on the TOC web site under the "Baseline Guidance" button.

5. How are the systems and subsystem TOC plans rolled up into the platform TOC plans? If they are linked, then how could we have completed some of the platform plans, when there are numerous subsystems that haven't begun to develop theirs?

Answer: The overall OSD emphasis is upon reducing costs at the Weapons Systems Level. The Weapons Systems should take credit for all TOC initiatives that reduce the Acquisition, projected Operations and support or In-Service Operations and Support Costs of their platform. Those Weapons Systems cost reductions that are realized through planned implementation of a system or subsystem level TOC reduction (for example improved Radar) should be annotated to reflect that the cost savings are result of a "system or subsystem's TOC plan." There needs to be close coordination and agreement between subsystem level TOC plans with the impacted weapons systems – especially when the impact of the subsystem level TOC initiative impacts the Weapons Systems acquisition or flying hour program funding. In the case where platform plans are required before subsystems there again needs to be coordination to establish reasonable expectations so that the Weapons Systems will have realistic objectives. TOC reduction plans are intended to be living documents which can be adjusted over time. However, goals and thresholds should be established initially that establish reasonable expectations.

6. Is the requirement to develop TOC plans for all ACAT programs, or all programs currently fielded?

Answer: ASN(RDA) direction has a focus for all programs whereas the AIR-1.0 memo dated 31 July 1998 only specifically addresses those programs currently in the acquisition process. Since the stated DoD requirement is to force changes that accrue large Operations and Support reductions for fielded systems it appears that all significant fielded systems should have a cost reduction plan. Note that all NAVAIR programs that are in-service are supposed to have CWR Programs in place. Since the CWR program is the basis for an in-service program's TOC reduction plan it appears that all NAVAIR programs should have a plan in place.

7. Do the reductions to the baseline TOC cost have to be specific, or can an IPT lead simply place an objective (like 5% reduction) to the baseline?

Answer: We believe the reductions need to be specific, based on the cumulative net cost avoidance/savings associated with a program's CAIV or CWR initiatives (per encl (1) of AIR-1.0's policy memo dated 31 Jul 98 on implementation of TOC baselines). The goals should be achievable based on executable initiatives. The exception would be an early development program like JSF that needs to work the cost and operational trades process. For an early development program percentage reductions would probably be more appropriate.

8. A majority of the additional costs we are capturing with the TOC effort are not controlled by the Program Manager, and the Program Manager is being asked to sign up to goals and thresholds including these costs. Most of the initiatives we are capturing will aim to reduce either acquisition or O&S costs that would have been captured under our standard O&S estimate. In a few weeks, we should be able to quantify for you the percent of costs for the V-22 that the program manager can actually affect.

Answer: Most O&S costs are not "Directly" controlled by the Program Manager. Nevertheless, each PM has the responsibility to attempt to control costs through a combination of smart investments, changes in maintenance policy, working with N-8 and fleet sponsors, etc., to find ways to reduce TOC.

9. When we are allocating costs across platforms, how do we ensure that we do not over or under allocate? We have heard that some platforms may allocate based on flight hours, while others may use number of aircraft. An example of what we are talking about would be allocating a security force at a base between multiple platforms.

Answer: For different types of costs different allocation parameters may be required. The AIR-4.2.2 TOC estimates have examples of allocations done for training costs, land-based IMA and other areas. Each used an allocation that flowed out of the available usage data. It's really up to the PMA to decide how they want it.

10. Are TOC plans and estimates required for the Air Force or Army portion of Navy-lead joint program?

Answer: The current guidance that all programs participate is unique to the DoN. In the short term Army and Air Force are going with pilot programs, so there is no requirement currently to provide TOC plans.

11. On programs where the Air Force- or Army-leads the joint service program, are TOC plans and estimates required for the Navy portion for the other service portion?

Answer: In a seminar, attended by PEO(T)ACQ2, on 19-20 Oct 98, she spoke to an ASN(RD&A) representative who indicated that there is no requirement to provide APBAs/TOC Reduction Plans on Army- or USAF-lead programs.

12. Does the definition of what is included in a development or production Acquisition Program Baseline Agreement (APBA), with a Navy decision authority, provide guidance on what is included in the TOC estimate, or on whether a TOC plan and estimate are required?

Answer: The 5000 series directives do not mention TOC in connection with APBs. The ASN(RD&A) memo of 5 May 1998 and AIR-1.0 memo of 31 July 1998 contained on the NAVAIR TOC web site (http://www.navair.navy.mil/air40/air42/toc/) provide the guidance as to what should be included. There are also sample cost structures for aircraft, electronics, and weapons systems included on the web site.

13. On many avionics programs, the equipment initially developed and procured by PMA-272 or PMA-209 or PMA-213, is GFE electronics on the aircraft. How much of the TOC cost (RDT&E, APN and O&MN) for these programs should be included in the aircraft TOC?

Answer: See the answer to question 5. The costs need to be captured at the aircraft weapons systems level because that is the level at which fleet funding is provided for component repair, consumable materials and labor composition, i.e., squadron manning, which are the primary areas that could show O&S cost savings for subsystem improvements. It is also important that the avionics system ensure that their savings are being captured against the end item systems and should not be double counted.

14. We are unclear on what the TOC baseline should be: Is it the Presidential Budget FY99, SAR Dec 98, Annual year buy, Multiyear buy, with or without planned future avionics modifications (Mission Computer, Cooperative Engagement Capability, SATCOM, Vapor Cycle, New displays)?

Answer: We recommend that programs use the TOC baseline basis that makes sense for their specific weapons systems.

15. What year should the baseline start: FY99 or should we go back to the point we got our last milestone approved?

Answer: See answer 13. The templates are set up to start with FY 99; "Prior" is FY98 cost.

16. When should the baseline end? The TOC charts show a "To Complete" column. Should "To Complete" reflect a true phase out of the E-2C or are we selecting a stopping year?

Answer: "To Complete" should capture the remaining LCCs (including disposal) of the program beyond the ten years shown.

17. Is there an approval process to get TOC plans signed off by AIR-4.2? If there is a process, could you please explain who and how long so we can plan this into our schedule. Is there a formal approval process once the TOC plans are submitted to the PMA? Who needs a copy by 31 Dec 98 and is there a lead time to get this through the proper channels to be completed on 31 Dec?

Answer: The Cost Department will not "sign off" on the TOC plans. However, we will work with the PMAs as they put their plans together. As with all estimates, AIR-4.2 has the responsibility to raise any issues that we may have about the validity of the data used and the methodology used to develop the estimate /ROI. We anticipate the PEOs will look to us to tell them if the analysis is sound.

18. How are Demilitarization and Disposal costs estimated? Is there a standard estimating method used by 4.2.5 to estimate these costs?

Answer: AIR-4.2.2 has two models that calculate environmental LCCs and deactivation, demilitarization and disposal costs for aircraft programs. Both of these models were developed by the 4.2.2 group located at NAWC Lakehurst.

The Environmental Life Cycle Cost (ELCC) Model is designed to estimate cradle to grave environmental costs. The model uses known environmental costs from legacy systems to project costs for developmental systems. The model includes manufacturing, maintenance, operations and disposal. The model accounts for hazardous material/hazardous waste purchasing/disposal and management, air emissions control and management and industrial wastewater treatment. The model is not difficult to use, but requires both a trained cost analyst and a trained environmental person to operate. It is expected that the program office would provide an environmental specialist knowledgeable of the program's hazardous materials while NAWCAD 4.2.2-Lakehurst would provide the cost analyst. Further information about the model can be obtained from NAWCAD 4.2.2-Lakehurst at DSN-624-4372.

The Deactivation, Demilitarization and Disposal (3D) Model is designed to assist the Aircraft Program Manager control not only the disposal of assets but to some extent the spare parts inventory. The model uses known disposal costs for legacy systems to project costs for developmental systems. The model

includes systems placed in storage at Davis-Monthan AFB, systems lost in accidents, systems donated to museums and systems retained at Naval installations for spare parts reclamation. The model can be used to determine the percent of systems sent to various fates. In this way, combined with a suggested spare parts reclamation program, the Program Manager can assure an adequate supply of ready spare parts. Further information on the model can be obtained from NAWCAD 4.2.2-Lakehurst at DSN-624-4372.

19. How many years does the TOC Plan need to be extended? I have heard 10 years and 20 years. I have also heard that it needs to be extended through the lifetime of the system.

Answer: Individual Cost-Wise readiness initiatives were developed using a 10-year baseline and period of performance. However, TOC plans as specified in the AIR-1.0 memo of 31 Jul 98 and attached templates are required to provide costs for the entire Life Cycle.

20 . According to the TOC Implementation Memo, TOC is nothing more than a standard LCC with a few additional elements added. These elements are Common Support Equipment, EOB Personnel, and demilitarization and disposal costs. If this is the case, how are these elements incorporated into the TOC/O&S Cost Estimating Structure?

Answer: The NAVAIR TOC web site (http://www.navair.navy.mil/air40/air42/toc/) provides recommended comprehensive TOC Structures. These structures should be used as guidelines for formulation of individual program TOC estimates. PMA's need to populate the data that is available.

21 . Given the existing TOC templates what type of dollar base should be used for developing costs of initiatives and reporting prior year, current year and out year TOC LCC costs?

Answer: All costs shall be provided in Constant FY99 dollars.